



PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 664504	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/JP2004/005865	International filing date (day/month/year) 23.04.2004	Priority date (day/month/year) 24.04.2003
International Patent Classification (IPC) or national classification and IPC		
Applicant MORISHITA JINTAN CO., LTD.		

1.	This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2.	This REPORT consists of a total of <u>6</u> sheets, including this cover sheet.
3.	This report is also accompanied by ANNEXES, comprising: a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows: <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4.	This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input checked="" type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

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Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

- ☐ international search (Rule 12.3 and 23.1(b))
☐ publication of the international application (Rule 12.4)
☐ international preliminary examination (Rule 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

☒ the international application as originally filed/furnished

☐ the description:

pages _____ as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ the claims:

nos. _____ as originally filed/furnished

nos.* _____ as amended (together with any statement) under Article 19

nos.* _____ received by this Authority on _____

nos.* _____ received by this Authority on _____

☐ the drawings:

sheets _____ as originally filed/furnished

sheets* _____ received by this Authority on _____

sheets* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	1, 4-6	YES
	Claims	2, 3	NO
Inventive step (IS)	Claims		YES
	Claims	1-6	NO
Industrial applicability (IA)	Claims	1-6	YES
	Claims		NO
2. Citations and explanations (Rule 70.7)			
The written opinion has been prepared based on each of the documents listed below and cited in the international search report:			
Document 1:	Masayuki YOSHIKAWA et al., Journal of the Pharmaceutical Society of Japan, 2001, 121(5), pages 371-378		
Document 2:	M. YOSHIKAWA et al., Chem. Pharm. Bull., 1998, 46(8), pages 1339-1340		
Document 3:	M. YOSHIKAWA et al., Tetrahedron Lett., 1997, 38(48), pages 8367-8370		
Document 4:	H. MATSUDA et al., Chem. Pharm. Bull., 1999 47(12), pages 1725-1729		
Document 5:	JP 2000-86653 (Ranka Aayuru Beetikku Habu Yakuhin Kabushiki Kaisha)		
Document 6:	JP 11-29472 A (Research Institute for Production Development)		
Document 7:	Osami KAJIMOTO et al., Journal of Japanese Society of Nutrition and Food Science, 2000, 53(5) pages 199-205		
Document 8:	JP 2001-103928 A (Fancl Corp.)		
Document 9:	WO 01/49674 A2 (Simon Fraser University)		

Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statementClaims 2 and 3

Documents 1 to 8 indicate that the solvent extract of roots or stem of *Salacia reticulata* exhibits an α -glucosidase inhibiting activity. A comparison between the invention set forth in claims 2 and 3 and the inventions disclosed in documents 1-8 shows that the substance represented by the structural formula in claim 1 seems to differ from the inventions disclosed in the documents.

However, claims 2 and 3 indicate that said substance contained within solvent extract from the roots or stem of *Salacia reticulata* and in terms of the state of the solvent extract, the substance is identical to those disclosed in documents 1 to 8. Therefore, it is impossible to recognise a clear difference between these inventions.

Consequently, the inventions set forth in claims 2 and 3 lack novelty and do not involve an inventive step in the light of documents 1 and 8.

Claims 1 and 4-6

Documents 1 to 6 indicate that the solvent extract of roots or stem of *Salacia reticulata* exhibits an α -glucosidase inhibiting activity and disclose Salacinol and Kotalanol as active ingredients displaying such activity. A comparison between the invention set forth in claims 1 and 4 and the inventions disclosed in documents 1-6 shows that the former substance differs from the latter in that a $-\text{CHOH}-\text{CH}_2\text{OH}$ group is substituted to the Salacinol skeleton bonding to the heterocyclic portion.

However, document 9 discloses a compound having a structure similar to Salacinol and Kotalanol and

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exhibiting an α -glucosidase inhibiting activity.

Document 9 also indicates that hydrogen or a $-\text{CHOH}-\text{CH}_2\text{OH}$ group can be substituted at the terminal of the Salacinol skeleton as an example of the terminal substituent group. Hence, no particular creative skill would be required of a person skilled in the art to add a substituent group to Salacinol, or to delete a substituent group from Kotalanol to produce a substance or composition such as that set forth in claims 1 and 4 having a substituent group in the intermediate chain of Salacinol or Kotalanol in order to improve the α -glucosidase inhibiting activity.

Moreover, although the invention set forth in claims 5 and 6 differs from those disclosed in documents 1 and 6-9 in terms of said substance being contained in foodstuff, adding a substance having α -glucosidase inhibiting activity or anti-diabetic activity to foodstuff is widely known to persons skilled in the art, as suggested in documents 7 and 8. Therefore, this feature would not pose any difficulty to a person skilled in the art.

Consequently, the inventions set forth in claims 1 and 4-6 do not involve an inventive step in the light of documents 1-9.

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Box No. VI Certain documents cited

1. Certain published documents (Rule 70.10)

Application No. Patent No.	Publication date (day/month/year)	Filing date (day/month/year)	Priority date (valid claim) (day/month/year)
JP 2003-171299 A	17.06.2003	30.11.2001	
[EX, EY]			

2. Non-written disclosures (Rule 70.9)

Kind of non-written disclosure	Date of non-written disclosure (day/month/year)	Date of written disclosure referring to non-written disclosure (day/month/year)
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